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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/514,196

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EXAMINER

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ART UNIT

PAPER NUMBER

1793

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/514,196		ARAI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	TIMA M. MCGUTHRY-BANKS		1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1793

## DETAILED ACTION

### *Status of Claims*

Claims 1-7 are currently amended, Claim 8 was as previously presented, and Claims 9-10 are cancelled.

### *Claim Rejections - 35 USC § 102/103*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Allen et al (US 3,890,816) and further evidenced by "Material Hardness."

Allen et al teaches a nickel-base alloy powder with the following composition as compared to the claimed invention (nickel balance not shown):

Art Unit: 1793

Element	Claim 1	Allen et al
Cr	32-44%	4-30%
Al	2.3-6%	up to 16% (including Ti)
Zr, Hf, V, & Nb	greater than 0 and less than or equal to 1%	up to 5% V up to 1% Zr up to 8% Hf up to 10% Nb
Ta	greater than 0 and less than or equal to 2%	up to 10%
Mo & W	greater than zero and less than or equal to 10%	up to 3.6%

When the ranges disclosed in the reference and claimed by applicant overlap in scope but the reference does not contain a specific example within the claimed range, a *prima facie* case of either anticipation or obviousness exists. See MPEP § 2131.03. Regarding the claim of the Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1).

Claim 2 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Allen et al and further evidenced by "Material Hardness."

Allen et al teaches a nickel-base alloy powder with the following composition as compared to the claimed invention (nickel balance not shown):

Element	Claim 2	Allen et al
Cr	32-44%	4-30%
Al	2.3-6%	up to 16% (including Ti)
(Zr+Hf+V+Nb) x10+Tax5+(Mo+W)	greater than 0 and less than or equal to 10	up to 5% V up to 1% Zr up to 8% Hf up to 10% Nb up to 10% Ta up to 3.6% Mo & W

When the ranges disclosed in the reference and claimed by applicant overlap in scope but the reference does not contain a specific example within the claimed range, a *prima facie* case of either anticipation or obviousness exists. See MPEP § 2131.03. Regarding the claim of the

Art Unit: 1793

Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1).

Claim 3 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Czech (US 5,939,204) as further evidenced by "Material Hardness."

Czech teaches a nickel-based alloy with the following composition as compared to the claimed invention (nickel balance not shown):

Element	Claim 3	Czech
Cr	32-44%	10-40%
Al	2.3-6%	0-20%
Ti	greater than 0 and less than or equal to 1.2%	0-5%

When the ranges disclosed in the reference and claimed by applicant overlap in scope but the reference does not contain a specific example within the claimed range, a *prima facie* case of either anticipation or obviousness exists. See MPEP § 2131.03. Regarding the claim of the Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1).

Claim 4 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Czech as further evidenced by "Material Hardness."

Czech teaches a nickel-based alloy with the following composition as compared to the claimed invention (nickel balance not shown):

Element	Claim 3	Czech
Cr	32-44%	10-40%
Al	2.3-6%	0-20%
Fe	greater than 0 and less than or equal to 5%	present (column 4, lines 35 and 36)

Art Unit: 1793

When the ranges disclosed in the reference and claimed by applicant overlap in scope but the reference does not contain a specific example within the claimed range, a *prima facie* case of either anticipation or obviousness exists. See MPEP § 2131.03. Regarding the claim of the Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1).

### ***Claim Rejections - 35 USC § 103***

Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 01-156445, as evidenced by ASTM Standard E 140-07, in view of Sugahara et al (US 5,529,642).

JP '445 as evidence by ASTM in view of Sugahara et al is as applied in the previous office action.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al (US 4,798,633), as further evidenced by "Material Hardness," in view of Karlstrom (US 6,503,345 B1).

Martin et al teaches a nickel-chromium-iron alloy with the following composition as compared to the claimed invention (nickel balance not shown) (from column 4, line 66 to column 5, line 8):

Element	Claim 5	1
Cr	32-44%	25-35%
Al	2.3-6%	up to 5%
C	greater than 0 and less than or equal to 0.1%	up to 0.06%
Mn	greater than 0 and less than or equal to 0.05%	up to 2%
P	greater than 0 and less than or equal to 0.005%	as low as possible
O	greater than 0 and less than or equal to 0.005%	not taught
S	greater than 0 and less than or equal to 0.003%	as low as possible
Cu	greater than 0 and less than or equal to 0.02%	up to 0.5%
Si	greater than 0 and less than or equal to 0.05%	up to 0.5%

Regarding the claim of the Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1). However, Martin et al does not teach a specific composition of P and S or a composition of O as claimed. Karlstrom teaches nickel-base alloy compositions. Oxygen, phosphorus, and sulfur are undesirable alloying elements that are usually present in all alloys up to 0.1% (column 8, lines 34-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the alloy of Grant et al would have P, O, and S in the claimed composition, since Karlstrom teaches that these elements are usual impurities in nickel alloys.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grant et al (US 3,015,558), as further evidenced by "Material Hardness," in view of Karlstrom.

Grant et al teaches a nickel-chromium-aluminum heat resisting alloy with the following composition as compared to the claimed invention (nickel balance not shown):

Element	Claim 6	Grant et al
Cr	32-44%	28-45%
Al	2.3-6%	1-6%
Mg	greater than 0 and less than or equal to 0.025%	up to 0.2%
Ca	greater than 0 and less than or equal to 0.02%	up to 0.02%
B	greater than 0 and less than or equal to 0.03%	up to 0.1%
rare earth	greater than zero and less than or equal to 0.02%	up to 0.2%
P, O, and S	greater than zero and less than or equal to 0.003%	not taught
Mn, Cu and Si	greater than zero and less than or equal to 0.03%	up to 2% Mn up to 4% Si

Regarding the claim of the Rockwell C hardness of 52 or more, hardness is an inherent property of a metal, as evidenced by the article "Material Hardness" (page 1). However, Grant et al does not teach P, O, and S as claimed. Karlstrom teaches nickel-base alloy compositions. Oxygen, phosphorus, and sulfur are undesirable alloying elements that are usually present in all alloys up

to 0.1% (column 8, lines 34-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the alloy of Grant et al would have P, O, and S in the claimed composition, since Karlstrom teaches that these elements are usual impurities in nickel alloys.

### ***Response to Arguments***

Applicant's arguments filed 22 October 2007 have been fully considered but they are not persuasive. Applicant argues that JP '445 as fails to teach or suggest the presently claimed replacing elements and/or trace elements with respect to Claim 1. The examiner noted this absence in this and the prior office action, and was relying on a combination of references to address this rejection. Regarding Sugahara and the teaching of Al in a range outside that claimed, Sugahara is used to give support for additional elements in the alloy of JP '445, not standing alone. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant has not provided a copy of the International Search Report as described in the response.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Derwent publication 1987-323464 (abstract of JP 62228445) teaches a nickel alloy comprising 30-50% Cr. The alloy may also contain at least one of, among others, Al, Zr, W, Nb, Hf, V, Mo, and Ta.



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 1793

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
T. M. M.  
Examiner, Art Unit 1793  
30 January 2008

  
**ROY KING**  
**SUPERVISORY PATENT EXAMINER**  
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